BOOK REVIEWS

Occupational toxicology, 2nd edition


The editors’ brave goal was to provide a book directed at occupational health and safety practitioners at different levels so that they could appreciate and deal with chemical related issues regardless of their basic training, and experience. The intention was to explain the basic features of toxicology and to provide a broad picture of the effects of chemicals on target tissues, always with an emphasis on examples related to workplace exposures. It was not to be a reference work but an aid to understanding the principles and practices of occupational toxicology.

I started to read it with excitement but ended with disappointment, mainly for two reasons. One is the very uneven standard of different chapters, some being detailed treatises and others superficial accounts of experiences or practices with little attempt to explain principles and mechanisms. There is not the continuing critical account of mechanism, processes, and effects that would give any practitioner a true foundation in each subject. The other was its narrow focus on the USA and Australia and with little recognition of Europe, where the exposure, evaluation, and solution of problems may follow different lines, not necessarily better but often less mechanistic and sometimes more pragmatic. The practice of occupational toxicology must be related to national or Community legal and industrial requirements and the lack of local information is a drawback.

There are 22 chapters in four sections covering the principles of toxicology, the basic features of occupational diseases of the principal body systems, the effects of major groups of chemicals, and the related fields of occupational hygiene, medicine, and epidemiology. The last section discusses uses of toxicological data in relation to the law, management of chemical safety, assessment of toxic chemicals, and an intriguing set of working examples. The authors come exclusively from the USA and Australia except for two well known Italian experts on neurotoxicity.

Each chapter provides most of the expected and important headings, but the examples and account and analysis of facts tend to be simplistic and often do not give an impression of the complex webs of factors likely to affect the occurrence, nature, and severity of a toxic effect. The paucity of examples and references to European practices must diminish the value of the work for students and practitioners in this part of the world.

The publishers cannot be pleased with a work that is difficult to read because of the use of multiple type faces, diagrams where letters are fused, and sketches of varied quality. The copy editing is suspect as such howlers as electrons in atomic nuclei and gas chromatography in the 1930s have got into print.

The underlying idea was good and is rapidly becoming essential in a field where much training occurs “on the job”. Let’s hope for better fulfilment in the next edition.

A Dayan

Research methods in occupational epidemiology, 2nd edition


When this book was first published, it rapidly became a standard reference for occupational epidemiologists, and for some years it has been the leading textbook in its field. A new edition, extensively revised and updated, is therefore most welcome. Changes include the addition of sections on case-cohort and case-crossover designs, and on the statistical analysis of repeated measures data, as well as the incorporation of many practical examples from more recently published research to illustrate theoretical points. There is also a new chapter on epidemiological surveillance of occupational hazards.

A good test of an epidemiological textbook is the way in which it covers the difficult topics of confounding and the case-control method, and on both these counts the book is a winner. The principles of each are clearly and logically developed. Indeed, the clarity of the text throughout is to be commended. Another example is the way in which the authors point out that once a study has been completed, power calculations become superfluous because the potential impact of sample size on statistical uncertainty can be much more meaningfully summarised by the confidence intervals around effect estimates. Unfortunately this message has still not got through to some researchers.

A further strength is the presentation of general estimating equations as an overarching framework that embraces commonly used analytical techniques such as linear, logistic, and Poisson regression. While many readers will find the detailed mathematics of these methods beyond them, and those who want to understand them in depth will need to refer to other sources, placing them in their logical context in this way is helpful.

Overall, however, this is a book that can be read from cover to cover, and does not serve only as a reference. This brevity and readability does, however, mean some restriction of scope, and readers will derive more from it if they are first familiar with the basic principles of epidemiology more generally. For example, there is little discussion of the practical challenges of case definition and approaches to their validation, and the development of concepts such as incidence, prevalence, and the various measures of association between exposure and disease may be a little cursory for the uninitiated reader. And unsurprisingly, the focus leans towards the authors’ particular areas of interest, with an emphasis on studies of mortality and cancer incidence in relation to chemical and physical exposures, and relatively less on reproductive outcomes, musculoskeletal disorders, or the assessment of ergonomic and psychosocial risk factors.

As always, there are a few minor criticisms that one can make. In more than 20 years experience as an occupational epidemiologist in the UK, I have never come across the “Central Record Office of the Ministry of Pensions and National Insurance”, and the authors are rather dismissive of period prevalence, although for some health outcomes such as back pain and finger bleeding it may be the most appropriate measure to use.

Overall, however, this is a book that can be thoroughly recommended. Every department of occupational epidemiology should have a copy, and those teaching the subject should consider using it as part of their teaching material. Occupational health practitioners with a more peripheral interest in epidemiology may find it useful to dip into, and it is structured in such a way that the more advanced sections can be easily identified and skipped over.

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